

Amendment**U.S. Patent Application No. 09/978,186****REMARKS**

Claims 1-64 are pending in the subject application: claims 1-56 and 58-64 stand rejected, and claim 57 is indicated as containing allowable subject matter. Favorable reconsideration of the application and allowance of all of the pending claims are respectfully requested in view of the above amendments and the following remarks.

Record of Interviews

Applicant wishes to thank the Examiner for graciously granting the personal interview of July 7, 2005 and the telephonic interview of July 25, 2005 to the undersigned attorney. Pursuant to MPEP 713.04, Applicant provides below the substance of the interviews.

(A) No exhibits were shown or demonstrations conducted.

(B) The independent claims were discussed.

(C) The cited Cangiani reference was discussed.

(D) No specific claim language was proposed; however, it was suggested to amend the independent claims to clarify the language distinguishing the invention from Cangiani.

(E) Applicant argued that the claim language requiring the state of the variable attenuator to be control in accordance with values of the digital signals clearly distinguishes the claims from Cangiani. The Examiner, while appreciating the technical differences between the invention and Cangiani, believed the claim language should be amended to more clearly articulate these differences.

(F) No other pertinent matters were discussed in detail.

(G) Applicant agreed to submit clarifying amendments to the claims based on the Examiner's comments.

Amendment

U.S. Patent Application No. 09/978,186

Response to Prior Art Rejections

Claims 1-56 and 58-64 stand rejected under 35 U.S.C. §102(e) as being anticipated by Cangiani (U.S. Patent Publication No. 2002/0075907). Applicant respectfully traverses this rejection for the following reasons.

The gist of Applicant's position is set forth in the Request for Reconsideration dated March 28, 2005, the substance of which is incorporated herein by reference.

Briefly recapitulating, the invention essentially performs the same interplex modulation operation as Cangiani using only two modulation "legs" rather than the four modulation legs required by the implementation in Cangiani, using a single phase modulator and a single attenuator in each leg, where the gain of the attenuator is controllable between two states as a function of the values of the signals being combined. Unlike Cangiani, the states of both the phase modulator and the variable attenuator in each modulation leg are controlled in accordance with the values of the digital signals being combined. As explained in paragraphs [0046] and [0047] of the Cangiani publication, the variable attenuators in the Cangiani publication are "variable" in that the gain can be adjusted in accordance with changes in the values of gain constants β_1 and β_2 , which are adjusted each time the relative power of the digital signals is to be changed. However, the states of the variable attenuators in the Cangiani publication are never controlled or adjusted in accordance with the values of the digital signals being combined. The attenuation levels remain fixed during the period of time that the values of constants β_1 and β_2 remain the same, irrespective of the values of the digital signals being combined for transmission.

Each of independent claims 1, 16, 35, and 54 has been amended to more clearly recite this difference between the present invention and the scheme described in Cangiani. For example, independent claim 1 has been amended to clarify that both the states of the phase modulators and the states of the variable attenuator are controlled in accordance with values of the digital signals being combined in the composite signal, such that the attenuation levels of the variable attenuators are selected as function of combinations of the values of the digital signals. Note, for example, in Fig. 3, that the gain of the I and Q channel attenuators are selected based

Amendment
U.S. Patent Application No. 09/978,186

on the logical exclusive OR of signals S_2 and S_3 . Again, there is no suggestion in Cangiani to control or select the attenuation level of a variable attenuator based on values of the signals being combined.

The Cangiani publication quite clearly explains that the variable attenuators in Fig. 4 are adjusted only in accordance with changes in the values of constants β_1 and β_2 , which have nothing to do with the values of the digital signals being combined in the composite signal. It is this fundamental difference that permits the present invention to be implemented with two modulation “legs” rather than the four modulation “legs” required by the implementation shown in Fig. 4 of the Cangiani publication. Thus, for the foregoing reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of claims 1-56 and 58-64.

The Examiner indicates that claim 57 would be allowable if rewritten in independent form to include all of the limitations of its parent claims and any intervening claims. The Examiner is requested to hold in abeyance the requirement of rewriting of claim 57 in independent form, until the Examiner has had an opportunity to reconsider (and withdraw) the rejection of parent claim 54 under 35 U.S.C. §102 (e).

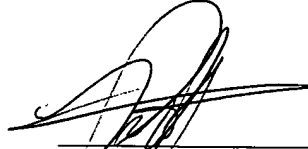
In view of the foregoing, Applicant respectfully requests the Examiner to find the application to be in condition for allowance with claims 1-64. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Amendment

U.S. Patent Application No. 09/978,186

Applicant hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,



Patrick J. Finn
Registration No. 39,189

EDELL, SHAPIRO & FINNAN, LLC
1901 Research Boulevard, Suite 400
Rockville, Maryland 20850-3164
(301) 424-3640

Hand Delivered on: September 2, 2005